I claim:

1. In a measurement system a method of evaluating a sample comprising:

generating a probe beam which is to be directed to the surface of the sample;

analyzing the probe beam after it has been reflected off the sample to determine characteristics of the sample; and

focusing the beam to a spot on the sample surface, using a lens, said lens having a curved focusing surface and being formed from a material whose index of refraction varies along the optical axis in order to substantially reduce spherical aberration, and wherein said lens is supported in a low stress lens mount including a resilient member for supporting the lens in a manner to reduce stress birefringence in the lens induced by changes in the ambient temperature.

2. The method of claim 1, wherein a focal length of the lens is less than 50mm.

3. The method of claim 2, wherein a numerical aperture of the lens is less than 0.20.

4. The method of claim 2, wherein a numerical aperture of the lens is less than 0.15.

5. The method of claim 2, wherein an effective numerical aperture of the lens is about 0.1.

6. The method of claim 1, wherein said probe beam is defined by a stable, narrow-bandwidth beam.

7. The method of claim 6, wherein said light source is a gas-discharge laser.

8. The method of claim 1, wherein the focused spot on the sample has a diameter along both axes of less than 25 microns.

9. The method of claim 1, wherein the focused spot on the sample has a diameter along both axes of less than 20 microns.

10. The method of claim 9, wherein the focused spot diameter on the sample has a diameter along one axis of less than 10 microns.

11. A small spot ellipsometer for evaluating a sample comprising:

a gas discharge laser having a stable, narrow-bandwidth output defining a probe beam directed to reflect off the surface of the sample;

an analyzer for evaluating the change in polarization state induced in the beam when the beam reflects off the sample;

a lens for focusing the beam to a spot size having a diameter along both axes of less than 25 microns, said lens having a spherical focusing surface, a focal length of less than 50mm and a numerical aperture less than 0.15 and being formed from a mixture of glass materials arranged so that the index of refraction of the lens varies along the optical axis thereof in order to substantially reduce spherical aberration; and

a low stress lens mount including a resilient member for supporting the lens in a manner to reduce stress birefringence in the lens induced by changes in the ambient temperature.

12. An ellipsometer as recited in claim 11, wherein the focused spot diameter on the sample has a diameter along one axis of less than 10 microns.